CLAIMS

1. A hydrocyclone, comprising:

a body having an inlet at the periphery of the body, an adjacent back wall through which there is a central overflow connection and a central underflow connection at the opposite end of the body;

the overflow back wall presenting an inclined face for redirecting the stream of fluid entering the hydrocyclone to flow axially along the hydrocyclone in at least two different paths having at least two axial velocity components for improved phase separation performance.

2. The hydrocyclone of claim 1, wherein:

said body having a longitudinal axis extending from said overflow connection to said underflow connection;

said face comprises a radially inner portion and a radially outer portion, each defining a generally helical surface at a distinct slope extending from adjacent said inlet toward said underflow connection.

3. The hydrocyclone of claim 2, wherein:

said inner radial portion extends at a shallower slope toward said underflow connection than said outer radial portion.

4. The hydrocyclone of claim 3, wherein:

the slope of said outer radial portion extends at more than twice the slope of that of said inner radial portion.

5. The hydrocyclone of claim 2, further comprising:
a wall disposed generally equidistant from said longitudinal axis and marking a boundary between said inner and outer portions of said face.

6. The hydrocyclone of claim 1, wherein:
the end wall face comprises three or more radial portions.

7. The hydrocyclone of claim 6, wherein:
the slope of each radial portion is greater than that of the portion spaced radially inwardly thereof.

8. The hydrocyclone of claim 1, wherein:
the end wall face presents a generally smooth, continuous surface.

9. The hydrocyclone of claim 1, wherein:
at least a portion of the end wall face is inclined relative to the longitudinal axis of the hydrocyclone.

10. The hydrocyclone of claim 2, wherein:
said helical surfaces are flat.

11. The hydrocyclone of claim 2, wherein:
said helical surfaces are curved.